

<u>TITLE:</u>	Applicability of Commercial/Industrial Generic Numerical Standards to Child Receptors
<u>DATE EFFECTIVE:</u>	May 2016
<u>HISTORY:</u>	New addition to the Technical Guidance Compendium
<u>KEYWORDS:</u>	property/land use, applicable standard, receptor, exposure, pathway, institutional control; school or child care facility
<u>RULE/ AUTHORITY:</u>	OAC 3745-300-07, 3745-300-08(C)(2)(b), 3745-300-09, 3745-300-11
<u>QUESTION:</u>	Are generic numerical standards for commercial/industrial category land use protective of child receptors?
<u>BACKGROUND:</u>	<p>Commercial land use is defined under the Voluntary Action Program (VAP) as land use with the exposure of adult workers during a business day and the potential exposures of adult and children as customers, patrons or visitors to commercial facilities during the business day. Generic standards for commercial land use may not be appropriate for properties where the potential exposure to children may occur with a high frequency, such as at schools or day care facilities, in accordance with OAC 3745-300-08(C)(2)(b).</p>
<u>ANSWER:</u>	<p>Likely no, when the property relying on generic numerical standards for the commercial/industrial land use category includes a school or day care facility. OAC 3745-300-08(C)(2)(b) states that generic standards for commercial land use are considered protective of transient exposures to adults and children, but may not be protective when a high frequency of potential exposure to children could occur. Ohio EPA considers that day care facilities and schools fall into the category of high frequency of potential exposure to children. The rule definition for the industrial land use category does not consider high frequency of exposure to children, so schools or day care facilities would not be permitted on property limited only to industrial land use.</p> <p>Ohio EPA conducted an evaluation in order to determine whether generic numerical standards for commercial land use could be considered protective of children that may receive frequent or prolonged exposure to contaminated media. Target concentrations</p>

were developed for a child receptor using equations found in the *Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures* and the following exposure factors:

Exposure Duration	6 years
Exposure Frequency	300 days/year
Exposure Time	12 hours/day
Body Weight	15 kg
Soil Ingestion Rate	100 mg/day ¹
Exposed Skin Surface Area	2,800 cm ²
Adherence Factor	0.2 mg/cm ²

For mutagenic COCs, an age dependent adjustment factor (ADAF) of 10 was applied for the 0-2 year age bracket, and an ADAF of 3 was applied for the 2-6 year age bracket.

The target concentrations were then compared to the generic numerical direct-contact soil standards and generic indoor air standards due to vapor intrusion. The results of this evaluation show that generic numerical standards for commercial/industrial land use are generally not protective where the potential exposure to children may occur with high frequency.

This analysis justifies the need for a property-specific risk assessment to determine compliance with applicable standards for a child receptor if a school or day care facility is reasonably anticipated to be located on a VAP property relying on a commercial land use limitation.

Property-specific risk assessments must take into account the use of institutional controls in accordance with OAC 3745-300-09(D)(2)(c). The institutional control should reflect that a high frequency of exposure to children has been anticipated, and this exposure has been demonstrated to be protective through a property-specific risk assessment. For example, day care facilities may be included in the list of allowable commercial land uses in the activity and use limitation (See the [VAP Environmental Covenants Guidance](#))². Alternatively, the properties meeting generic unrestricted standards or 'residential' standards would also be acceptable sites for schools or day care facilities.

SUMMARY:

A property-specific risk assessment needs to be conducted if frequent or prolonged exposure is reasonably anticipated for a child receptor at a property with commercial land use. Contact an Ohio EPA VAP

¹ Table 5-1 in US EPA's 2011 Exposure Factors Handbook indicates this is the central tendency ingestion rate soil + dust for 1 to 6 years.

² *Ohio EPA Guidance – VAP Environmental Covenants: Drafting Proposed Environmental Covenants with "Activity and Use Limitations" for Properties Seeking Covenants Not to Sue*. Updated July 2015.

representative for additional guidance on conducting property-specific risk assessments for a child receptor under any commercial land use situation. Any institutional controls implemented for properties participating in the VAP should accurately reflect the acceptable land use as supported by a property-specific risk assessment.

OHIO EPA
CONTACT:

For any questions concerning this issue, please contact the VAP central office at (614) 644-2924.